

CLAIMS

1. (Currently Amended) Amplifier apparatus comprising a power amplifier having an operating frequency in the radio frequency ("RF") or microwave or higher ranges and a pre-distorter, the characteristics of said power amplifier comprising a distortion from a linear transfer function, said pre-distorter comprising a non-linear path, a linear path, input means responsive to an amplifier input signal for applying respective pre-distorter input signals to said paths and combining means for combining a linear signal from said linear path with a non-linear signal from said non-linear path to produce a pre-distorted signal, the characteristics of said pre-distorter comprising a distortion relative to a linear transfer function such as to tend to compensate for the distortion of the transfer function of said power amplifier, wherein said input means is arranged to apply said pre-distorter input signals to said paths substantially in relative phase opposition and said combining means is arranged to combine said signals from said paths without introducing any significant relative phase difference,

wherein said non-linear path comprises a non-linear path amplifier, and a non-linear path attenuator for receiving a signal from said non-linear path amplifier, and said linear path comprises a linear path attenuator, and a linear path amplifier for receiving a signal from said linear path attenuator;

wherein said non-linear path amplifier is arranged to operate at conditions of bias voltage and signal amplitude substantially equal to those of at least a final stage of said power amplifier and said linear path amplifier is arranged to operate at smaller signal amplitude but at similar conditions of bias voltage.

2. (Original) Amplifier apparatus as claimed in claim 1, wherein said input means comprises reactive components introducing opposite phase differences of substantially $+90^\circ$ respectively relative to said amplifier input signal.

3. (Previously Presented) Amplifier apparatus as claimed in claim 1, wherein said input means and said combining means consist substantially of passive components.
4. (Original) Amplifier apparatus as claimed in claim 3, wherein said combining means comprises reactive components, together with a resistive component decoupling said paths.
5. (Canceled)
6. (Canceled)
7. (Previously Presented) Amplifier apparatus as claimed in claim 1, wherein substantially all the components of said pre-distorter are formed in a common semiconductor substrate.
8. (Original) Amplifier apparatus as claimed in claim 7, wherein components of said power amplifier are formed in said common semiconductor substrate.
9. (Original) Amplifier apparatus as claimed in claim 8, wherein substantially all the components of at least a first stage of said power amplifier are formed in said common semiconductor substrate.
10. (Previously Presented) Amplifier apparatus as claimed in claim 1, wherein the outputs of said input means and the inputs of said combining means each present an impedance substantially matched to 100 Ohms, and the input of said input means and the output of said combining means each present an impedance substantially matched to 50 Ohms.
11. (Previously Presented) Amplifier apparatus as claimed in claim 1, and comprising a variable attenuator interposed between said power amplifier and said pre-distorter.